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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/606,319	06/28/2000	Krishna Seshan	042390.P8490	5476

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EXAMINER

WEISS, HOWARD

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 04/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/606,319

Applicant(s)

SESHAN, KRISHNA

Examiner

Howard Weiss

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 26-28 ~~is/are~~ pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 26-28 ~~is/are~~ rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Attorney's Docket Number: 042390.P8490

Filing Date: 6/28/00

Continuing Data: none

Claimed Foreign Priority Date: none

Applicant(s): Seshan

Examiner: Howard Weiss

Drawings

1. Figures 1(a) and 1(b) should be individually designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. New corrected drawings are required in this application because Figures 1(a) and 1(b) are not designated by a legend such as --Prior Art--. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
4. Claims 1 to 3, 6, 7, 11, 12, 14, 15 and 26 to 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim (U.S. Patent No. 5,854,513).

Kim shows all aspects of the instant invention (e.g. Figures 3 to 6) including:

- a bond pad of two segments **22,23** with two lines **27**, **probe** electrically connected to said pad segments one of said line being a wire lead (**probe**)
- vias (openings in insulation layer **24**) offset from the center of a bump **41** and electrically connected to said pad segments
- said bump comprises lead-tin solder or a non-lead containing conductor (Column 4 Lines 31 to 37)
- BLM **25** disposed over said bond pads segments and having segments (BLM in the vias and outside said vias) and comprising lower and upper layers of the claimed materials (Column 4 Lines 12 to 25)

In reference to the claim language pertaining to the BLM providing a diffusion barrier to metals, the claiming of a new use, new function, or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 195 USPQ 430, 433 (CCPA 1977) and *In re Swinehart*, 439 F. 2d 210, 169 USPQ 226 (CCPA 1971); see MPEP § 2112. Since Kim shows all the features of the claimed invention, the ability of the BLM to act as a metal diffusion barrier is an inherent property of Kim's invention.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim and Tadauchi et al. (U.S. Patent No. 6,464,122).

Kim discloses the claimed invention except that the bump's solder comprises lead-tin instead of tin-silver-copper. Tadauchi et al. teach (Column 9 Lines 43 to 55) that the tin-silver-copper solder is an equivalent structure known in the art. Therefore, because these two solders were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute tin-silver-copper for lead-tin.

7. Claims 5, 8 to 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim and Takada et al. (Kokai 05-013418).

Kim shows most aspects of the instant invention (Paragraph 4) except for the bump comprising ECA or polymer, the lower and upper layers of the stated thicknesses and the BLM segments and vias in a polygonal layout. Takada et al. teach (e.g. Figure 6(a)) to layout vias and BLM segments in a polygonal layer to prevent generation of cracks (see PURPOSE). Additionally, ECA or polymers are known equivalents in the art for bumps and are therefore obvious for one of ordinary skill to use in place of the metal bumps.

Since the Applicant has not established the criticality of the thicknesses stated and since these thicknesses are in common use in similar devices in the art, it would have been obvious to one of ordinary skill in the art to use these values in the device of Kim and Takada et al. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Response to Arguments

8. Applicant's arguments filed 2/14/03 have been fully considered but they are not persuasive. The submission of formal drawings is not fully responsive to the previous office action. In particular, the ---Prior ART--- labels required for Figures 1a

and 1b are missing. The Applicant is required to submit corrected or substitute drawings in the reply to this office action.

In reference to the BLM of Kim being one segment as opposed to the two or more depicted by the Applicant, the Examiner stated the segments shown in the device of Kim those segments of the BLM of Kim in the vias and outside said vias. The Examiner has used the definition of segment (from Webster's II New Riverside University Dictionary) as "Any of the parts into which something can be divided." The broad interpretation includes a single layer segmented (or divided) into distinct parts. The BLM of Kim can be divided into those parts in the vias and in contact with the bond pad and those parts in contact with the insulation film **24**. Although a claim should be interpreted in light of the specification disclosure, it is generally considered improper to read limitations contained in the specification into the claims. See *In re Prater*, 415 F.2d 1393, 162 USPQ 541 (CCPA 1969) and *In re Winkhaus*, 527 F.2d 637, 188 USPQ 129 (CCPA 1975), which discuss the premise that one cannot rely on the specification to impart limitations to the claim that are not recited in the claim. In the instant case, the segments being detached as described in the Specification would have to be explicitly stated in the claims.

In reference to the wire lead, the **probe** as shown in Figure 3 covers this limitation. In view of these reasons and those set forth in the present office action, the rejections of the stated claims stand.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

10. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. Papers should be faxed to Art Unit 2814 via the Art Unit 2814 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(703) 308-7722** or **-7724**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications. The official TC2800 Before-Final, **(703) 872-9318**, and After-Final, **(703) 872-9319**, Fax numbers will provide the fax sender with an auto-reply fax verifying receipt of their fax by the USPTO.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(703) 308-4840** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via **Howard.Weiss@uspto.gov**.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group 2800 Receptionist at **(703) 308-0956**.

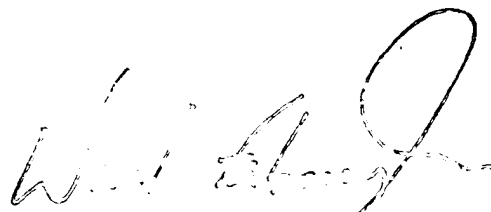
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12. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/737, 774, 781	thru 4/8/03
Other Documentation: none	
Electronic Database(s): EAST	thru 4/8/03

HW/hw
8 April 2003

Howard Weiss
Examiner
Art Unit 2814



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TECHNOLOGY CENTER 2800